TOMALES BAY PATHOGENS TMDL
PROJECT PLAN

Waterbodies: Tomales Bay and its tributaries (Walker, Lagunitas, and Olema Creeks)
Pollutant: Pathogens
Beneficial Uses: Shellfish harvesting, water contact recreation (REC1) and non-contact water recreation (REC2)
Water Quality Objectives: Fecal coliform
Receiving Water: Tomales Bay
Watershed Location: North Bay, Marin County
Watershed Area: 223 square miles
TMDL Completion Date: June 2004
Contact: Farhad Ghodrati, Coordinator, Tomales Bay Pathogen TMDL, Phone: 510-622-2331, E-mail: fg@rb2.swrcb.ca.gov

Major Milestones, Products, and Completion Dates:

Milestone/Product	Fiscal Year	Completion Date
Draft Problem Statement, numeric targets, sources and loadings analysis	00-01	June 2001
Preliminary TMDL Project Report	01-02	November 2002
Final TMDL Project Report	02-03	October 2003
Basin Plan Amendment	03-04	June 2004

Approach:

Problem Statement. Tomales Bay is listed as impaired due to pathogens based on:

- the exceedance of water quality standards for shellfish harvesting;
- the listing of Tomales Bay as "threatened" under the state's Shellfish Protection Act;
- the California Department of Health Services' prohibition on commercial harvesting during rainfall periods; and
- an illness outbreak from the consumption of shellfish that illustrated the inability to protect human health, under current conditions, even when coliform objectives are being met.

The San Francisco Bay Basin Plan objectives for fecal coliform in shellfish growing waters (the beneficial use most sensitive to pathogens) dictate that water cannot exceed a median of 14 Most Probable Number (MPN) fecal coliforms /100mL or the 90th percentile cannot exceed 43 MPN/100mL. Water quality objectives for water contact recreation and non-water contact recreation are: log mean of <200 MPN/100 ml, and mean of < 2000 MPN/100 ml, respectively.

A problem statement was developed to better define the pathogen impairment. Samples taken during two comprehensive studies showed that there are high loadings of total and fecal coliform in most of the east shore creeks and tributaries discharging into Tomales Bay during rainfall events. Highest fecal coliform loadings occur in the Walker Creek and Lagunitas Creek watersheds, as well as along a number of small east shore tributary streams. These results were consistent with a number of earlier studies (1974-1995) conducted by the Department of Health Services and the Regional Board.

Source Analysis. A comprehensive source analysis was conducted. The potential categories of sources of pathogens in the Tomales Bay watershed were identified as: runoff from cattle grazing lands, confined animal facilities and other agricultural land uses (sheep farms, horse farms, etc.); runoff from urban areas containing waste from pets, etc.; faulty onsite sewage disposal (septic) systems; recreational activities such as boating and camping; small wastewater treatment facilities; and wildlife.

Study results indicate that nonpoint source runoff from dairies and grazing lands is likely to be the predominant source of coliform loading to the Bay. Walker Creek is a particular source of interest to the shellfish industry because of its location in the north central part of the Bay where the majority of the shellfish leases are located.

Implementation Plan. The TMDL process will proceed with the development of nonpoint source pollution control strategies including compilation of Best Management Practices, education and outreach activities, increased regulation (i.e., issuance of Waste Discharge Requirements), establishment of TMDL endpoints, and implementation of a verification / monitoring process to evaluate progress. We will work with agencies and local stakeholders through the Tomales Bay Shellfish Technical Advisory Committee (TBSTAC) and the Tomales Bay Watershed Council.

Regional Board programs involved in this TMDL process are Nonpoint Source Pollution Management Programs, including non-chapter 15 Waste Discharge Requirements, and confined animal facility waste management. While there are no significant impediments or outstanding issues of internal coordination to resolve, it is important that these existing programs be implemented and enforced. As these programs continue in the watershed, they will contribute to the resolution of water quality impairment of the Bay.

Issues:

Due to the limited funding and time available for data information, one of the challenges we face is a gap in available data and information. As stakeholder participation is a key element in the implementation of the TMDL, cooperation from stakeholders is crucial. Because waste load allocations will be spread throughout the various land uses and stakeholder groups, continued involvement from all watershed stakeholders is essential to the development of an equitable and successful TMDL.

The ultimate success of the TMDL will rest on implementing recommended management practices. For the TMDL to be successful, stakeholders must agree to implement the management measures developed by the TMDL process. A potential lack of funding for implementation of nonpoint source pollution management measures may also serve as a challenge for reducing the pathogen load to the Bay.

Stakeholder Participation:

In order to address the problem of the Bay's impairment due to pathogen loadings, a watershed-wide stakeholder involvement process has been implemented. Stakeholder outreach will focus on runoff from the three major creek tributaries (Walker, Lagunitas, and Olema Creeks) and a number of smaller eastshore tributaries. To address potential discharges from onsite sewage disposal systems and recreational boaters, stakeholders from those constituencies have been included in the process as well. As the Tomales Bay watershed spans a broad range of ownership and land uses—including both state and federal parklands, agriculture, and small community residential areas—the TMDL approach needs to be an interagency and community-wide effort.

As part of the Shellfish Protection Act of 1993 passed by the California Legislature, the Regional Board was required to establish the TBSTAC to investigate pollution sources affecting the shellfish industry in Tomales Bay. The TBSTAC includes federal, state, and local agencies, dairy and other agricultural producers, shellfish growers, community groups, and environmental interests. Pursuant to the Shellfish Protection Act and in conjunction with the TMDL process, the Regional Board will work with the TBSTAC to develop a remediation strategy to address abatement of pollutant sources.

The Regional Board will look to the TBSTAC for technical support as well as to serve as a forum for communication with local stakeholders, so that we can provide ongoing status reports to the community on the progress of the TMDL.